

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claims 1-31(canceled)

Claim 32 (new): A method of manipulating a solid, which comprises:

- (a) measuring a first mechanical resonant frequency of a transfer device;
- (b) adhering one or more particles of the solid to said transfer device; and
- (c) measuring a second resonant frequency of said transfer device.

Claim 33 (new): The method of claim 32, further comprising determining the mass of said one or more particles by comparing the first and second resonant frequencies.

Claim 34 (new): The method of claim 32, further comprising:

- (a) depositing said one or more particles at a target location; or
- (b) measuring continuously the resonant frequency of said transfer device to provide a feedback cycle for manipulating said one or more particles of the solid.

Claim 35 (new): The method of claim 33, wherein:

- (a) the mass of said particles is less than about 1 mg;
- (b) the mass of said particles is less than about 500 micrograms; or
- (c) the mass of said particles is less than about 100 micrograms.

Claim 36 (new): A system for manipulating a solid, which comprises:

- (a) a transfer device comprising a means for creating an electric field or gradient that is sufficient to adhere one or more particles of a solid to said transfer device;

- (b) a means for determining a mechanical resonant frequency of said transfer device operatively coupled to said transfer device; and
- (c) a means for depositing said one or more particles.

Claim 37 (new): The system of claim 36, wherein said means for creating an electric field or gradient comprises two or more electrodes coupled to an electrical source.

Claim 38 (new): The system of claim 37, wherein said electrodes are:

- (a) concentric, parallel, planar, or interdigitated;
- (b) concentric;
- (c) parallel;
- (d) planar; or
- (e) interdigitated.

Claim 39 (new): The system of claim 36, wherein:

- (a) the magnitude of said electric field is from about  $10^5$  V/m to about  $10^8$  V/m;
- (b) the magnitude of said electric field is from about  $10^6$  V/m to about  $10^7$  V/m;
- (c) the magnitude of said electric field is from about  $2 \times 10^6$  V/m to about  $5 \times 10^6$  V/m;
- (d) said one or more particles are deposited by removing the electric field;
- (e) deposition of said one or more particles is facilitated by the application of mechanical force to the transfer device; or
- (f) deposition of said one or more particles is facilitated by removing the electric field coupled with the application of mechanical force to the transfer device.

Claim 40 (new): The system of claim 39, wherein said mechanical force is vibration or an abrupt jolt.

Claim 41 (new): A method of manipulating a solid, which comprises:

- (a) measuring a first mechanical resonant frequency of a hollow tube;
- (b) inserting said hollow tube into a powder bed to obtain a plug of powder;
- (c) removing the tube from the powder bed; and
- (d) measuring a second resonant frequency of the tube.

Claim 42 (new): The method of claim 41, wherein said hollow tube has an interior that accommodates a means for ejecting materials from within it.

Claim 43 (new): The method of claim 42, wherein:

- (a) said means for ejecting materials is a piston, vibration, pressurized gas, or a liquid; or
- (b) the material is ejected from the tube after the second resonance frequency is measured.

Claim 44 (new): A system for manipulating a solid, which comprises:

- (a) a tube having an interior that accommodates a means for ejecting materials from within it; and
- (b) a means for determining a mechanical resonant frequency of said tube operatively coupled to said tube.

Claim 45 (new): The system of claim 44, wherein the means for determining a mechanical resonant frequency comprises an excitation signal generator and a means for detecting the effect of an excitation signal on the tube.

Claim 46 (new): The system of claim 45, wherein:

- (a) said excitation signal generator is a piezoelectric transducer, a solenoid shaker, an acoustic speaker, or an electrostatic comb; or
- (b) the means for detecting the effect of an excitation signal is a laser displacement sensor, capacitance sensor, accelerometer, phase Doppler velocimeter, piezoelectric sensor, strain gauge, or impedance analyzer.